# Python Cyberstart Level 4

Challenges 1 – 5 in CyberStart Moon Base Level 4 review what you covered in Level 3, but a little more complicated. Python information is available in the CyberStart Field Manual, or in the free online book, Automate the Boring Stuff with Python <https://automatetheboringstuff.com/> (scroll down to see the table of contents.)

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| --- | --- | --- | --- | --- |
|  | Title | Subject | Field Manual | Automate |
| 1 | Strange File | file review-print the output | 5.12 Reading Writing Files | Ch 9 Read Write Fil |
|  |  |  |  |  |
| 2 | Agent Profile | review indents |  | Ch 2, see 'blocks of code' |
| 3 | Broken Robot | loops, functions |  |  |
| 4 | Unlocking the Message | review L3C3, http header |  |  |
| 5 | Alien Server | review L3C3 socket |  |  |

Please complete the Level 4 challenges. There is no other hand-in for this lab, so if you have joined our class group in CyberStart (access code is email-ocean-pilot) I'll see your work and you will not need to turn anything in to Canvas.

Note: Sometimes CyberStart can be picky about the answer it wants to see. If CyberStart won't give you credit when you are sure you are correct, run the code in your own Python. Then send me the results via email through Canvas.

## Notes for Level 4

### Challenge 1

This one has you read from a file. Note that you have to print the answer, not just read it, to get credit.

### Challenge 2

The problem you need to fix is with indentation. There is clumsy code where they use a for loop but create their own variable to include in the file name, but you still get credit if you don't fix that.

### Challenge 3

This is a fun little challenge that drives a robot around. You can call the functions by themselves, as in  
robot.down()  
No need to do a = robot.down().

You can save some lines with a for loop instead of saying robot.down() or robot.up() over and over again.

### Challenge 4

This is a review of HTTP and urllib, but they add headers seemingly out of nowhere. If you go to the manual for Python urllib, <https://docs.python.org/3/library/urllib.request.html>,

you will see a good example to use.  
A computer code with red and blue text

Description automatically generated

Note that it first creates a request object (urllib.request.Request). It adds the header, and then sends the request with urllib.request.urlopen().

In the example, the header name is 'Referer' and the value is 'http://www.python.org/'. In your case the header name is x-api-key and the value is an integer, converted to a string, between 5500 and 5600.

### Challenge 5

This challenge is a review of sockets, which you saw in L3C2. I had trouble deciding just what is was that they wanted me to send.

YOU SEND  
b’this is the response’

The lines above give you the general format. Things you send are in blue, the response to expect is in black. The following is an example of what a successful connection looks like (without the flag, of course.)

USER  
b'Hello whats your username:'  
aliensignal  
b'Username received, PASS command next.'  
PASS  
b'Now what is your password: '  
unlockserver  
b'Login successful\nPlease SEND us base then END connection.'  
SEND  
b'Now send your message:'  
moonbase  
b'Base set. Please end transaction to retrieve key:'  
END  
b'Well done the flag is: redacted '